Innovative Planning for Healthy and Sustainable Communities

Todd Litman
Victoria Transport Policy Institute

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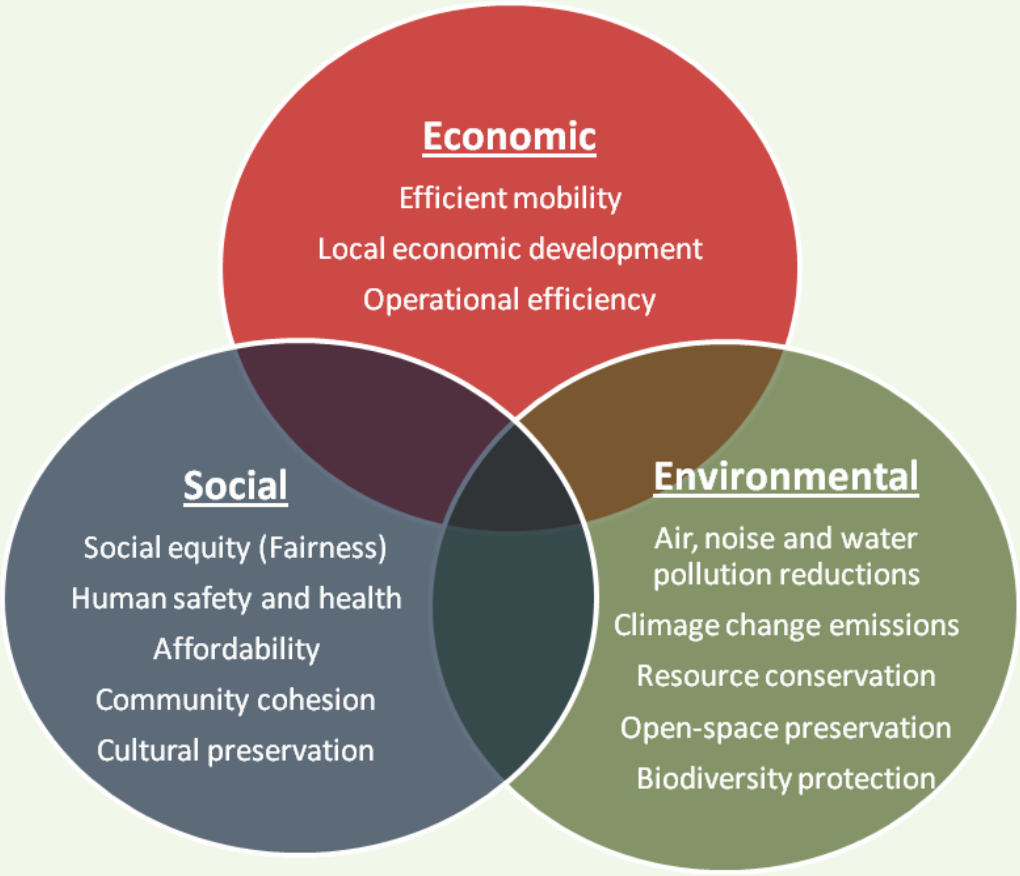
Creating Paradise

Paradise is not a distant destination, it is something we create in our own communities.

Sustainable Planning

Sustainability emphasizes the integrated nature of human activities and therefore the need to coordinate planning among different sectors, jurisdictions and groups.



Sustainabile Transportation?

Is a transport system sustainable if all vehicles are electric powered?

Electric Power Does Not:

- Reduce traffic congestion
- Reduce accidents
- Reduce roadway costs
- Reduce parking facility costs
- Reduce vehicle purchase costs
- Improve mobility for non-drivers
- Improve social equity
- Improve public fitness and health
- Reduce sprawl
- Protect threatened habitat

Past Visions of Future Transport

1949 ConvAIRCAR Flying Car

Segways

Jet Pack

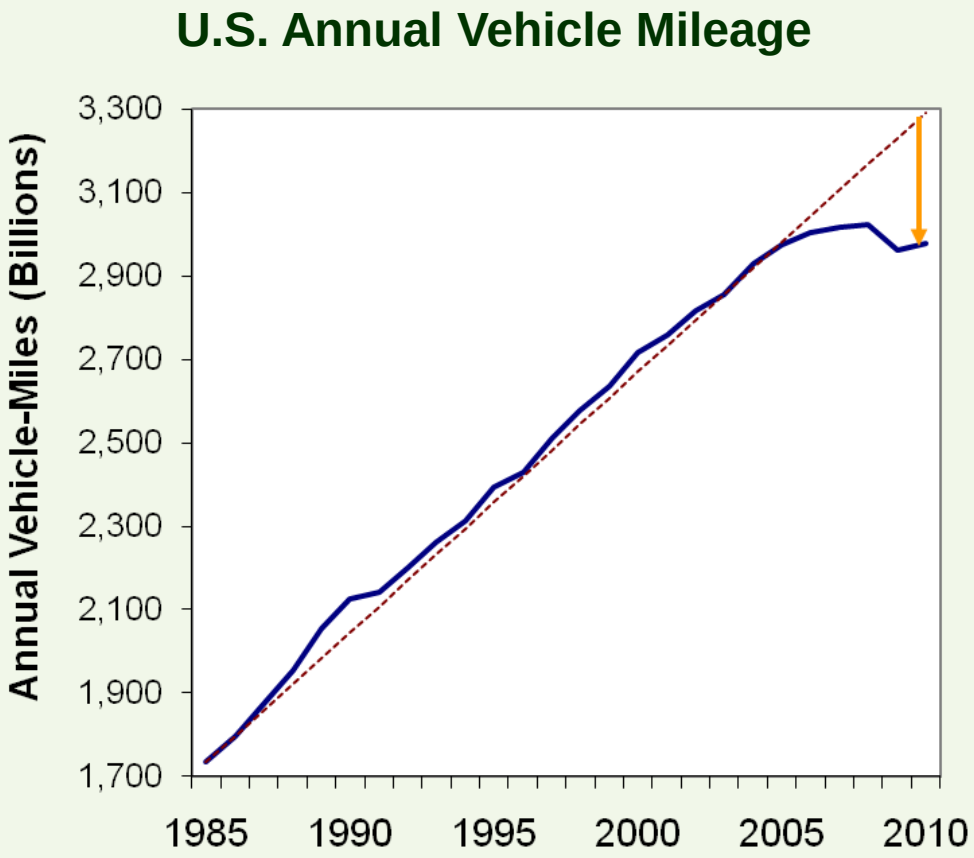
Audi Self-Driving Car

Supersonic Concord

2001 A Space Odyssey

Wheeled Luggage

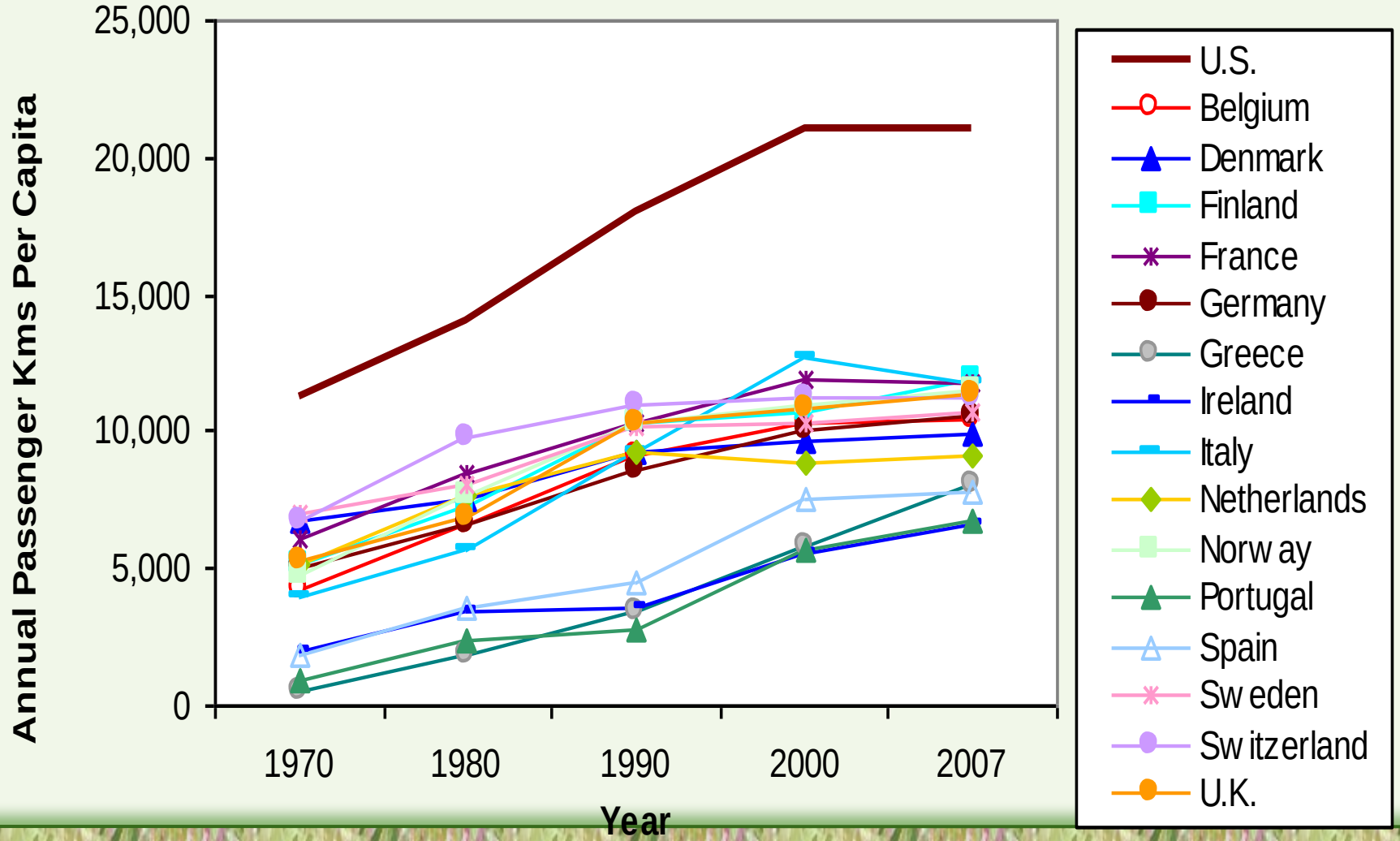
Trends Supporting Multi-Modalism



U.S. vehicle travel grew steadily during the Twentieth Century but stopped about 2003.

- Motor vehicle saturation.
- Aging population.
- Rising fuel prices.
- Increased urbanization.
- Increased traffic and parking congestion
- Improved transport options
- Changing preferences
- Environmental concerns.
- Health Concerns

International Trends



"The Economist" 22 Sept. 2012

"Governments may find that changes in driving habits force them to rethink infrastructure. Most forecasting models that governments employ assume that driving will continue to increase indefinitely. Urban planning, in particular, has for half a century focused on cars.

If policymakers are confident that car use is waning they can focus on improving lives and infrastructure in areas already blighted by traffic rather than catering for future growth.

By improving alternatives to driving, city authorities can try to lock in the benefits of declining car use."

The Economist

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The future of driving

Seeing the back of the car

In the rich world, people seem to be driving less than they used to

Sep 22nd 2012 | from the print edition

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"I'LL love and protect this car until death do us part," says Toad, a 17-year-old loser whose life is briefly transformed by a "super fine" 1958 Chevy Impala in "American Graffiti". The film follows him, his friends and their vehicles through a late summer night in early 1960s California: cruising the main drag, racing on the back streets and necking in back seats of machines which embody not just speed, prosperity and freedom but also adulthood, status and sex.

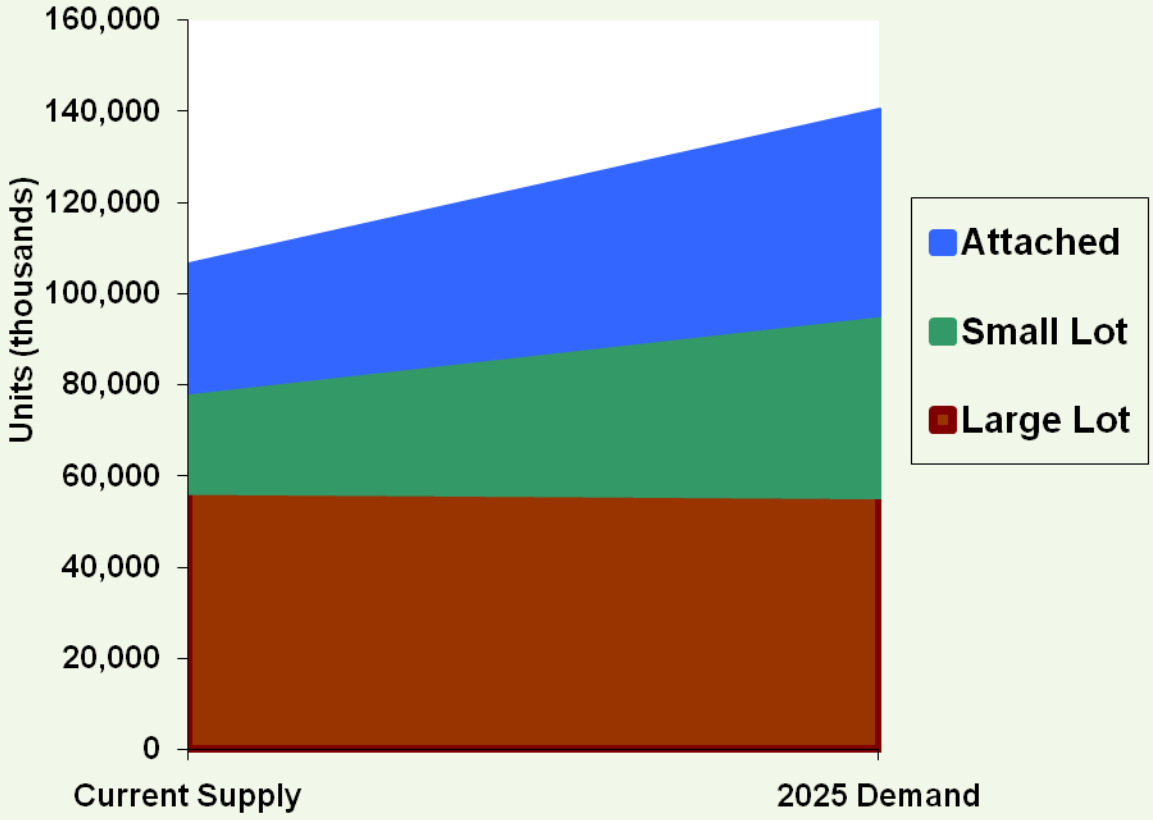
"Emerging Trends in Real Estate"

"Energy prices and road congestion accelerate the move back into metropolitan-area interiors as more people crave greater convenience in their lives. They want to live closer to work and shopping without the hassle of car dependence… Apartment and townhouse living looks more attractive, especially to singles and empty nesters..." (Urban Land Institute 2009)

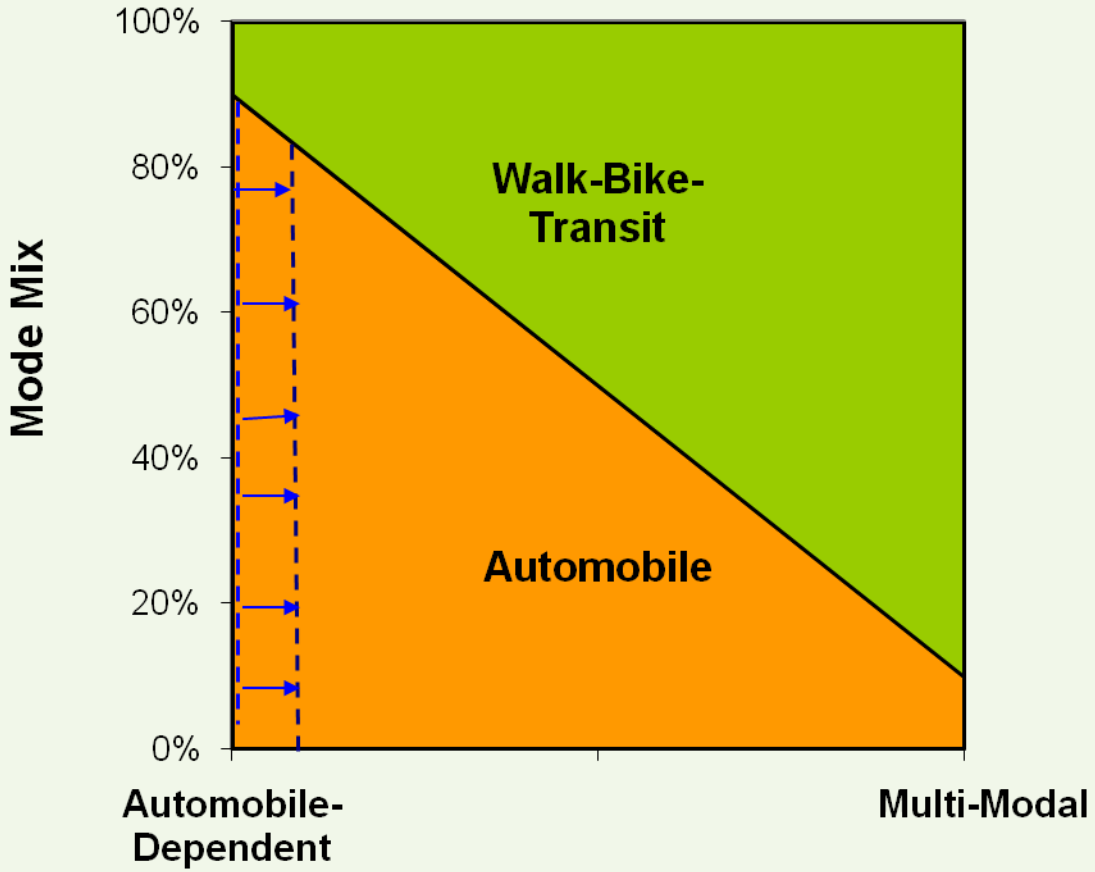
Housing Demand By Type (Nelson 2006)

The current supply of large-lot suburban is approximately adequate to satisfy demand for the next two decades.

Most growth will be in smaller-lot and multi-family housing.



Modal Shifts



Small shifts from automobile to alternative modes causes large increases in walking, cycling and public transit demand.

For example, a 10-point shift doubles demand for alternative modes.

Planning Principles

- *Comprehensive* – considers all significant objectives, impacts and options
- *Integrated* – individual, short-term decisions support strategic, long-term objectives
- *Inclusive* – affected people are informed and involved in decisions
- *Logical* – each step leads to the next
- *Transparent* – everybody involved understands the process operates
- *Efficient* – the process should not waste time or money.

Paradigm Shift

	Old Paradigm	New Paradigm
Definition of *Transportation*	*Mobility* (physical travel)	*Accessibility* (people's overall ability to reach services and activities)
Transport planning goals	Maximize travel speeds and minimize user costs	Optimize transport system efficiency and equity
Modes considered	Mainly automobile	Multi-modal: Walking, cycling, public transport, and automobile
Performance indicators	Vehicle traffic speeds, roadway Level-of-Service (LOS), distance-based crash and emission rates	Quality of transport options. Multi-modal LOS. Land use accessibility. Quality of accessibility for disadvantaged groups. Various costs to users and society.
Favored transport improvement strategies	Road and parking facility expansion.	Improve transport options. TDM. More accessible land development.
Health impacts considered	Per-kilometer traffic crash and pollution emission rates	Per capita crash, emission and physical activity rates, and basic access

Mobility Versus Accessibility

Mobility (physical movement)

- Favors faster modes and longer trips
- Ignores land use impacts
- Supports highway expansion and sprawl

Accessibility (abiltity to reach desired services and activities)

- Favors multi-modalism. Recognizes the roles of non-motorized and public transport.
- Recognizes land use impacts on accessibility
- Supports comprehensive, integrated planning and smart growth development

What is "The" Transportation Problem?

- Traffic congestion?
- Road construction costs?
- Parking congestion or costs?
- Excessive costs to consumers?
- Traffic crashes?
- Lack of mobility for non-drivers?
- Poor freight services?
- Environmental impacts?
- Inadequate physical activity?
- Others?

Current Transport Planning

Current planning tends to be reductionist: each problem is assigned to a single agency with narrowly defined responsibilities. For example:

- Transport agencies deal with congestion.
- Environmental agencies deal with pollution.
- Welfare agencies deal with the needs of disadvantaged people.
- Public health agencies are concerned with community fitness.
- Etc.

Reductionist Decision-Making

Reductionist planning can result in public agencies implementing solutions to one problem that exacerbate other problems facing society, and tends to undervalue strategies that provide multiple but modest benefits.

Win-Win Solutions

More comprehensive planning helps identify "Win-Win" strategies: solutions to one problem that also help solve other problems facing society.

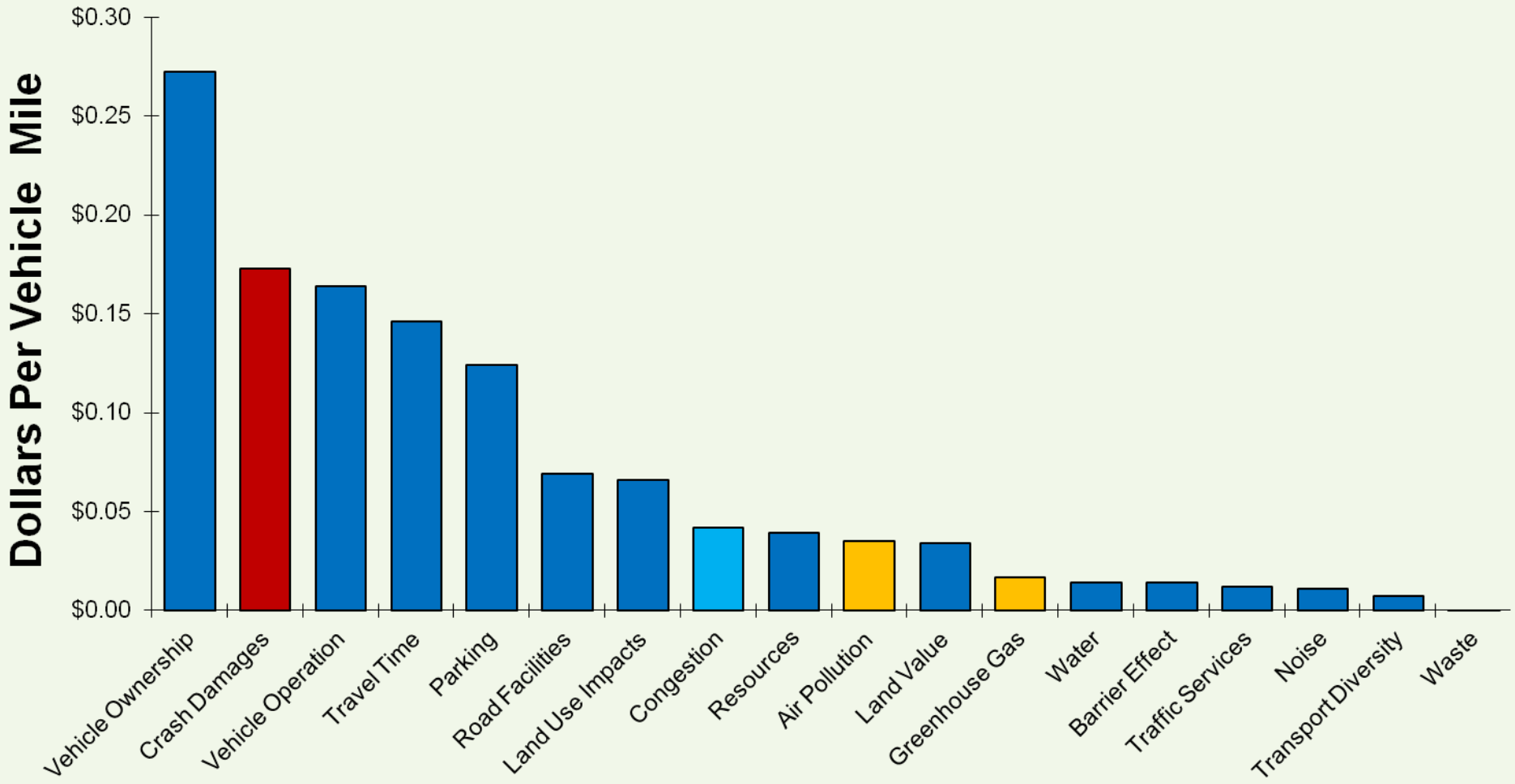
Ask:

"Which congestion-reduction strategy also reduces parking costs, saves consumers money, and improves mobility options for non-drivers."

Comparing Benefits

Planning Objectives	Expand Roadways	Efficient and Alt. Fuel Vehicles	Improve Alt. Modes and Smart Growth
Vehicle Travel Impacts	*Increased VMT*	*Increased VMT*	*Reduced VMT*
Reduce traffic congestion	✓		✓
Improved travel experience	✓		✓
Roadway cost savings			✓
Parking cost savings			✓
Consumer cost savings			✓
Improve mobility options			✓
Improve traffic safety			✓
Energy conservation		✓	✓
Pollution reduction		✓	✓
Land use objectives			✓
Public fitness & health			✓

Comparing Costs



Conventional Evaluation

Generally Considered

- Congestion impacts
- Vehicle operating costs
- Per-mile crash impacts
- Per-mile pollution emissions.

Often Overlooked

- Parking costs
- Total consumer costs
- Downstream congestion
- Crash, energy & pollution impacts of changes in mileage
- Land use impacts
- Impacts on mobility options for non-drivers/equity impacts
- Changes in active transport and related health impacts

Valuing Transport Diversity

An efficient transportation system is diverse and has suitable incentives for users to choose the best mode for each trip, considering all impacts (benefits and costs). Current planning does a poor job of accounting for many of benefits of this diversity.

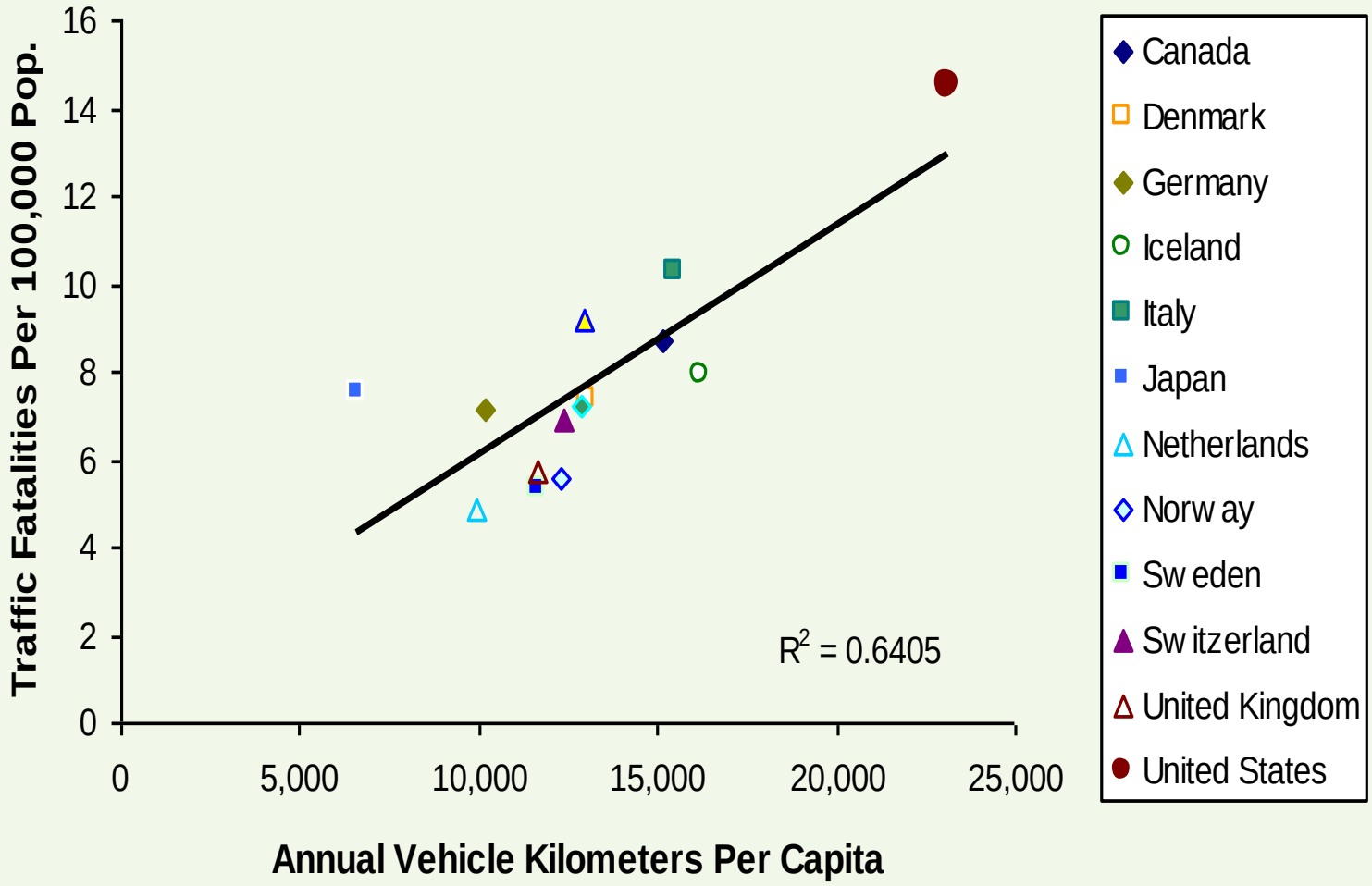
"A developed country is not a place where the poor have cars. It's where the rich use public transportation."

Gustavo Petro, Mayor of Bogota

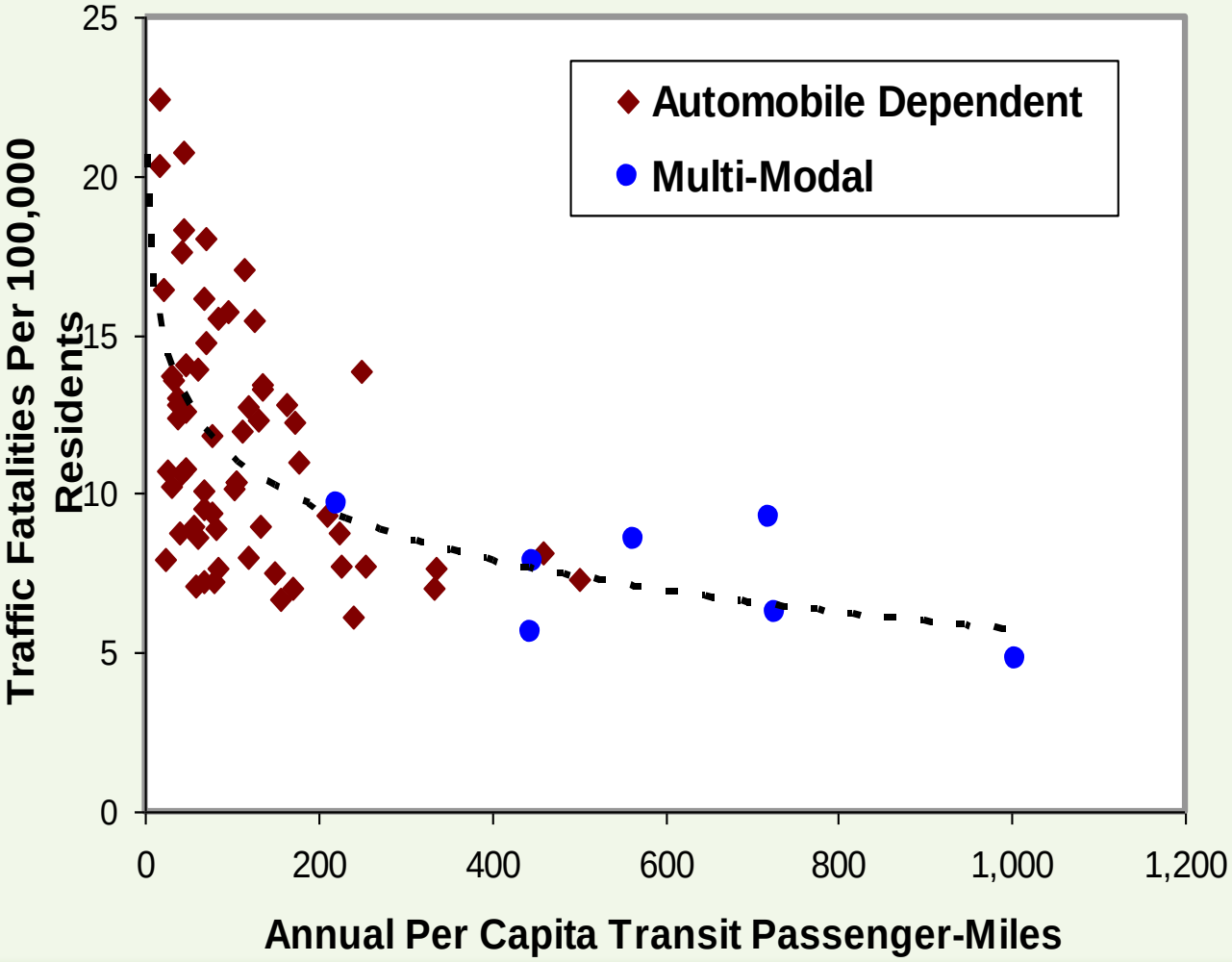
Often Overlooked Diversity Benefits

- Basic mobility for non-drivers
- Overall affordability (including vehicle ownership cost savings)
- Reduced traffic and parking congestion
- Parking cost savings
- Consumer preferences for alternative modes
- Accident, fuel and pollution reductions from reduced vehicle travel
- Increased public fitness and health
- Community livability and historic preservation and associated increases in property values and business activity
- Land use impacts (reduced sprawl)

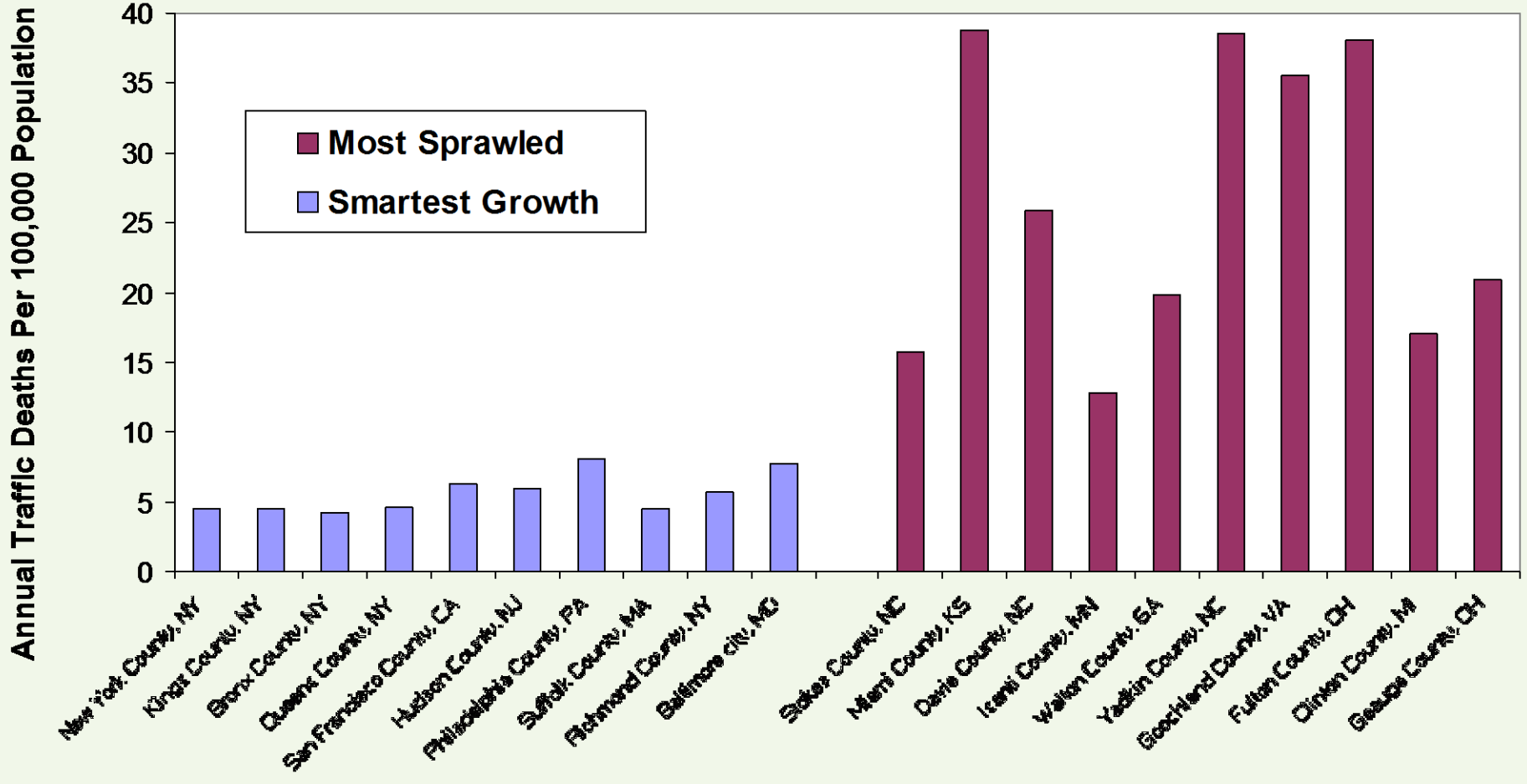
Vehicle Travel Vs. Traffic Deaths



Traffic Fatalities



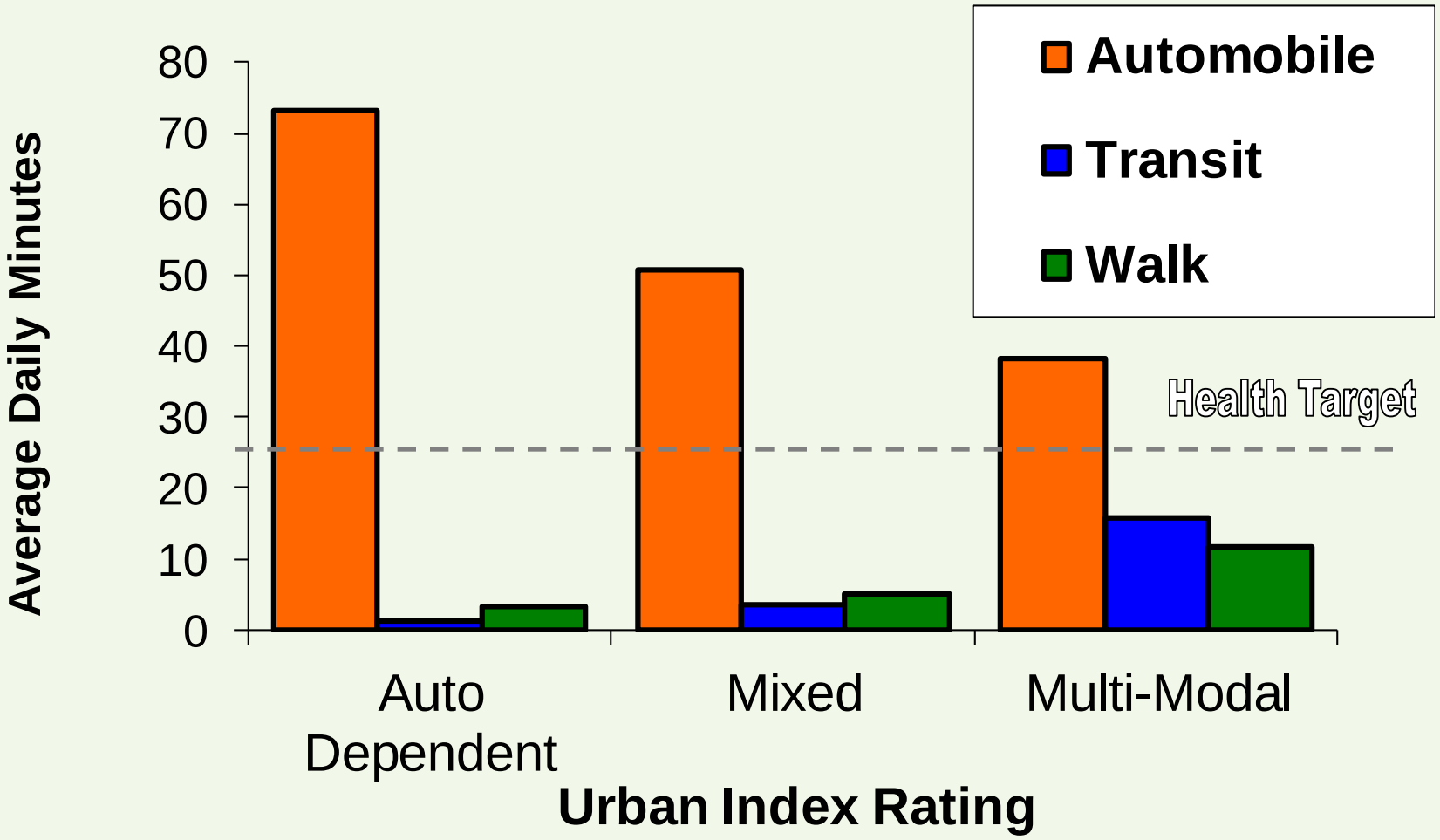
Smart Growth Safety Impacts



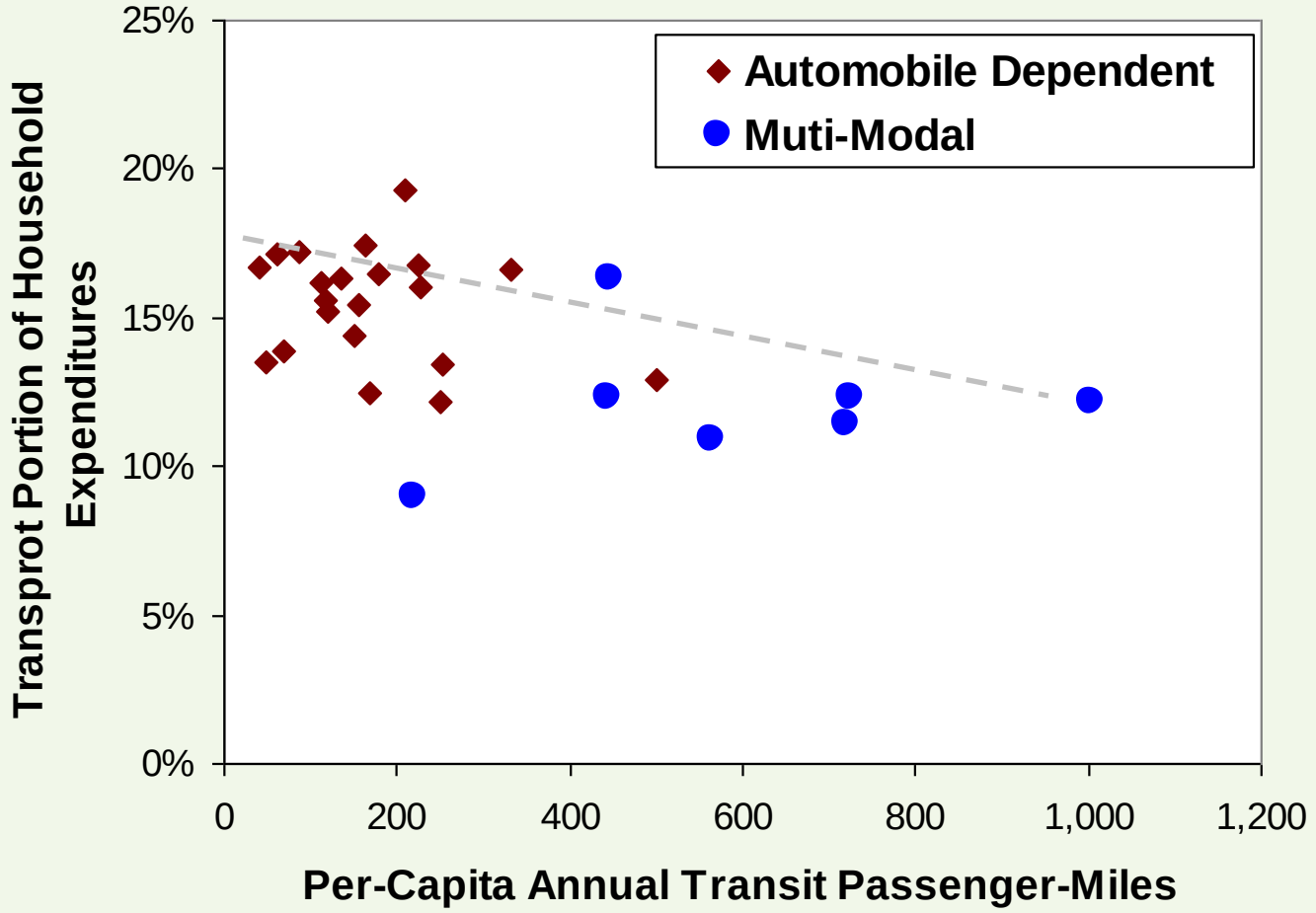
What Gets People Moving?

Walking is a natural and essential activity. If you ask sedentary people what physical activity they will most likely to stick with, walking usually ranks first.

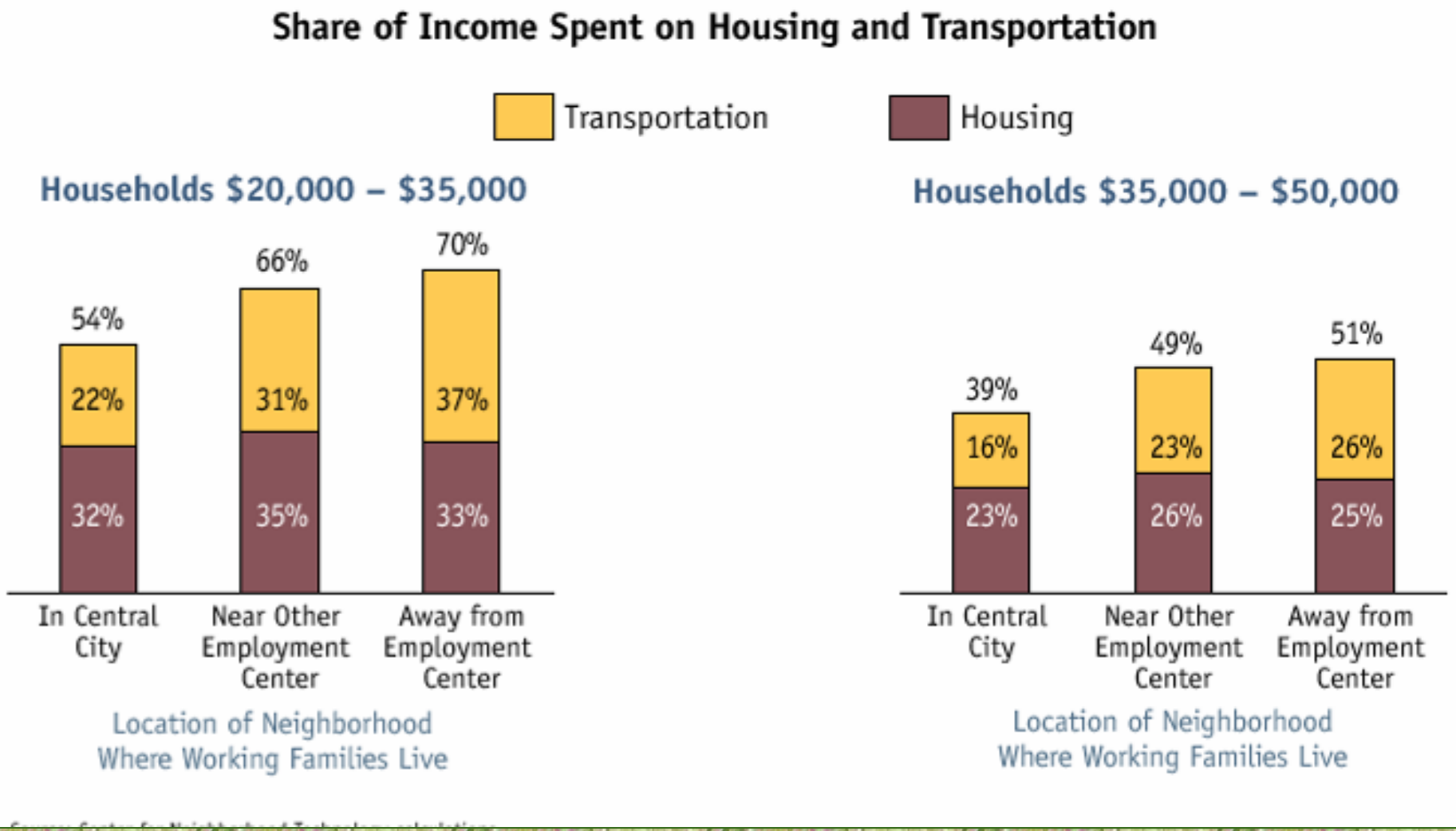
Land Use Impacts On Travel



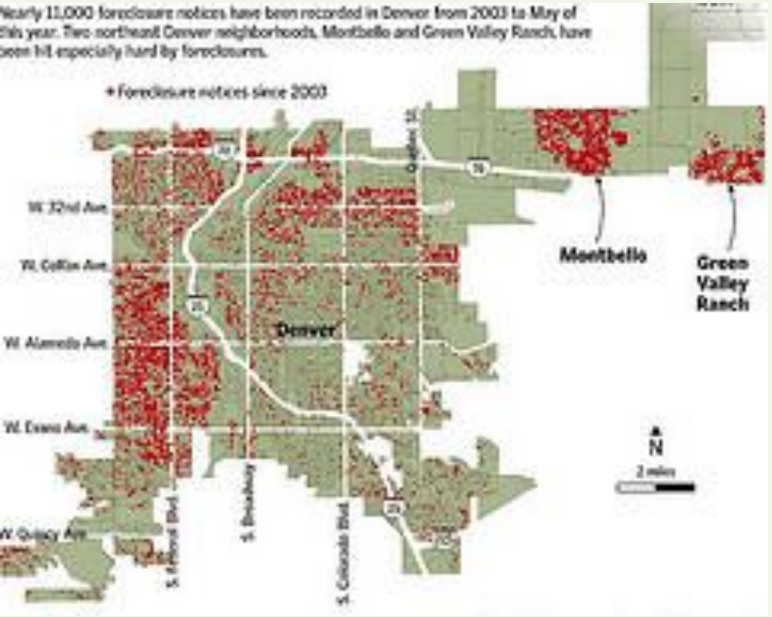
Transportation Affordability



"A Heavy Load" Report

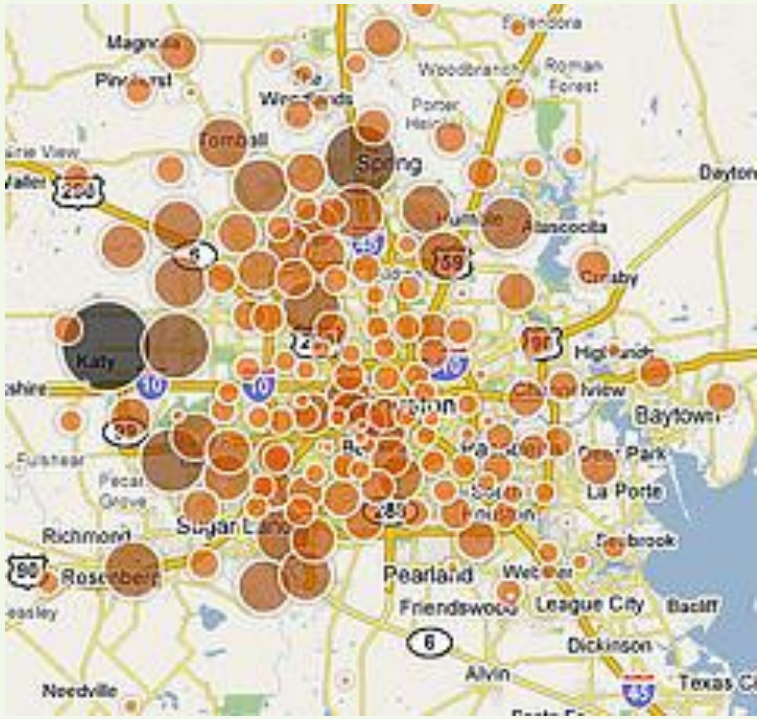


Housing Foreclosures



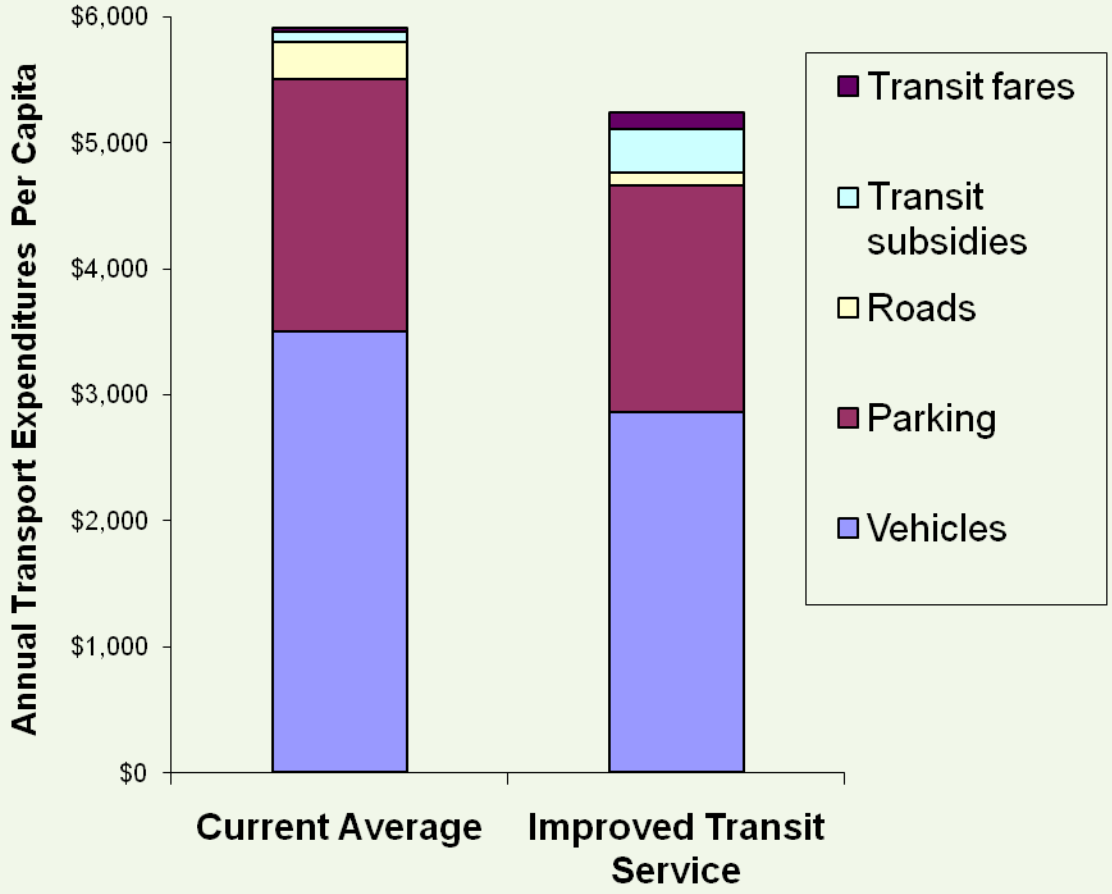
Denver

Housing foreclosure rates are much higher in automobile-dependent locations.



Houston

Return on Investment



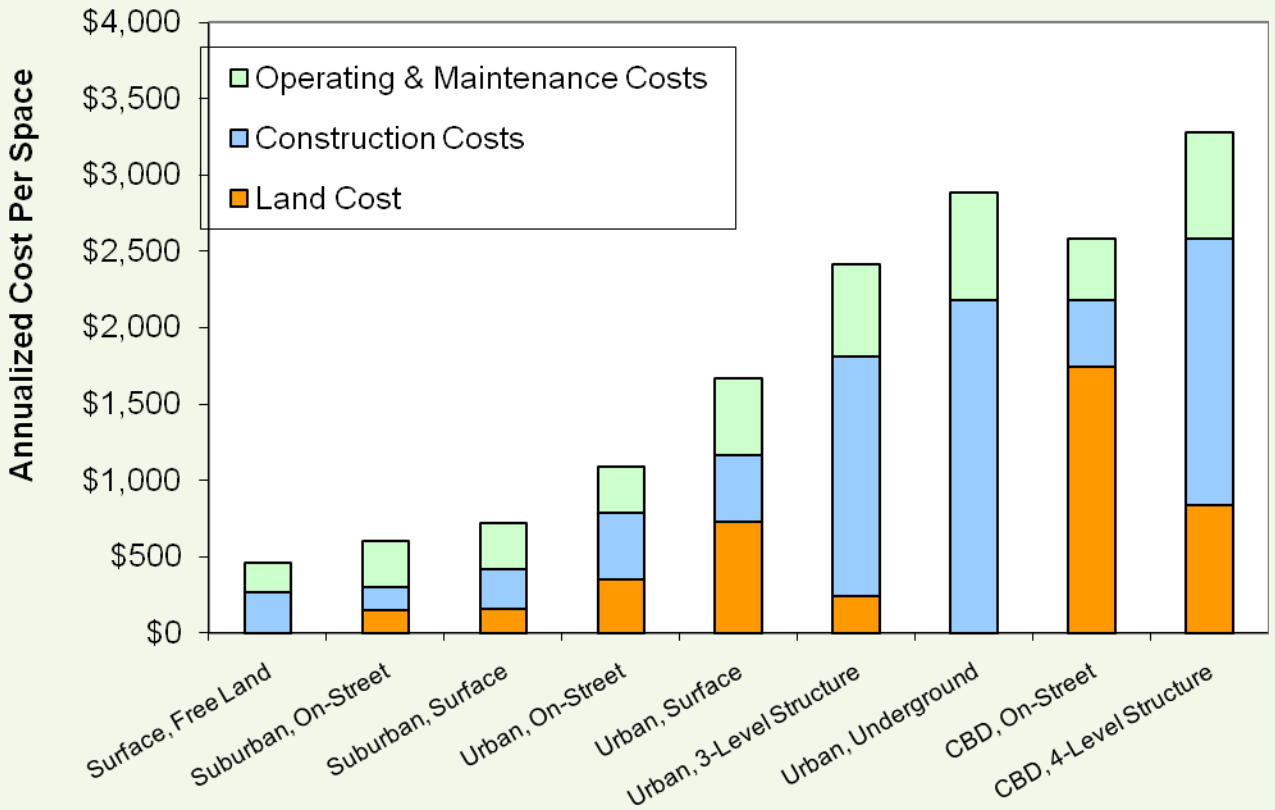
High quality public transit typically requires about $268 in additional subsidies and $104 in additional fares annually per capita, but provides vehicle, parking and road cost savings averaging $1,040 per capita, plus other savings and benefits:

- Parking cost savings.
- Congestion reductions
- Accident reductions
- Pollution reductions Improved mobility for non-drivers,
- Improved fitness and health

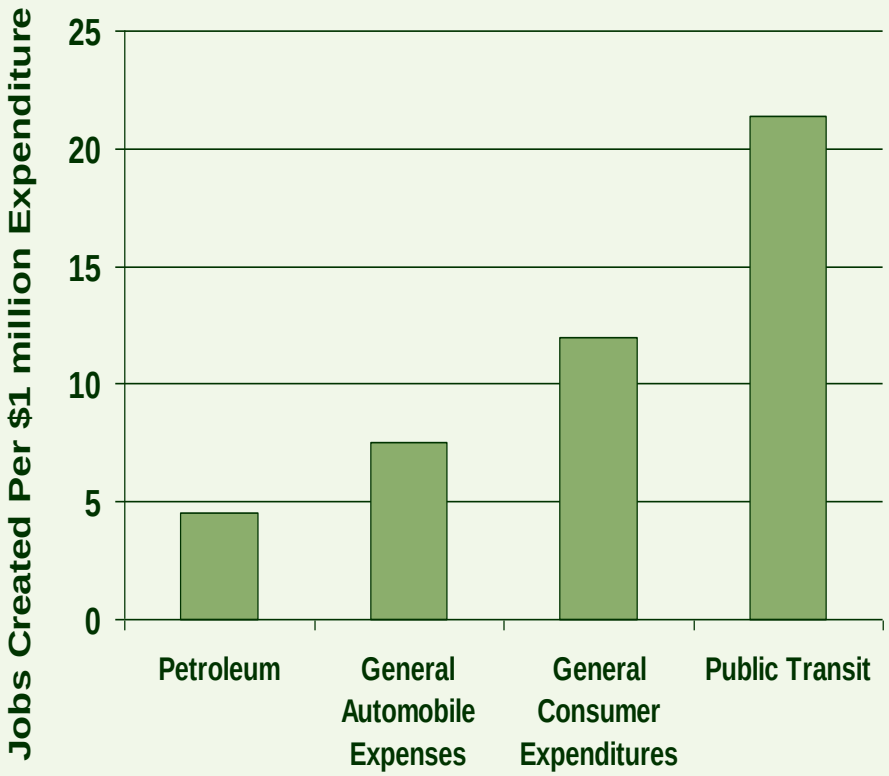
Parking Cost Savings

Most people have no idea of the real costs of providing parking facilities.

Most vehicles are worth less than the total value of parking spaces they use. The majority of these costs are subsidized (not borne directly by users)



Community Economic Impacts

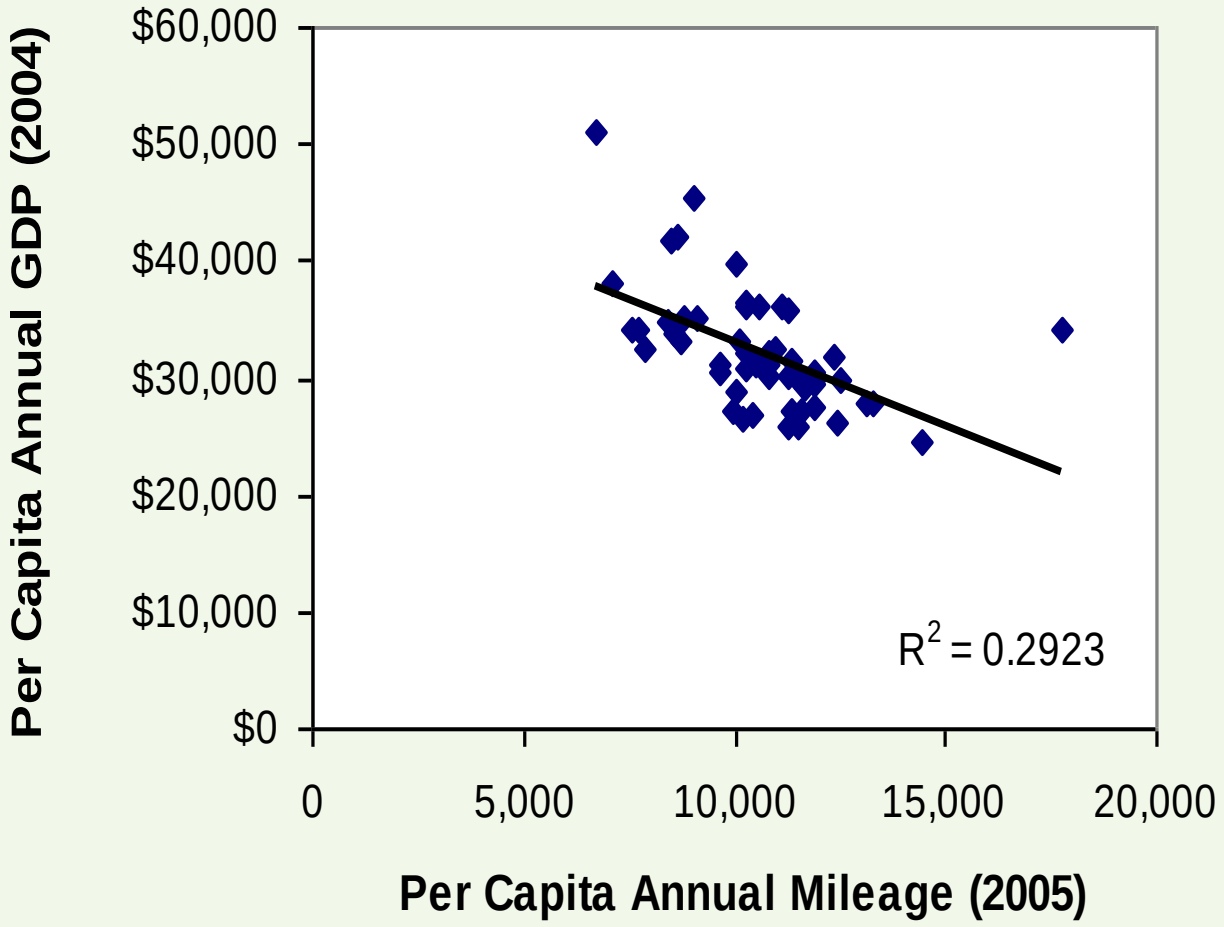


- Transport savings and efficiencies (congestion, parking, taxes) increases productivity and competitiveness.
- Reducing vehicle expenditures and expanding transit service increases regional employment and business activity.
- Agglomeration efficiencies.
- Supports strategic land use development objectives.
- Increases affordability, allowing businesses to attract employees in areas with high living costs.
- Changes in household expenditures on vehicles and fuel.

Per Capita GDP and VMT

Productivity tends to decline with increased mobility. (Each dot is a U.S. urban region.)

Bureau of Economic Analysis and FHWA data



Memo From Future Self

Hope for the best but prepare for the worst:

- *Physical disability* – diverse and integrated transport with universal design (accommodates people with disabilities and other special needs).
- *Poverty and inflation* – affordable housing in accessible, multi-modal locations.
- *Higher energy prices* – improve efficient modes (walking, cycling and public transport).
- *Isolation and loneliness* – community cohesion (opportunities for neighbors to interact in positive ways).

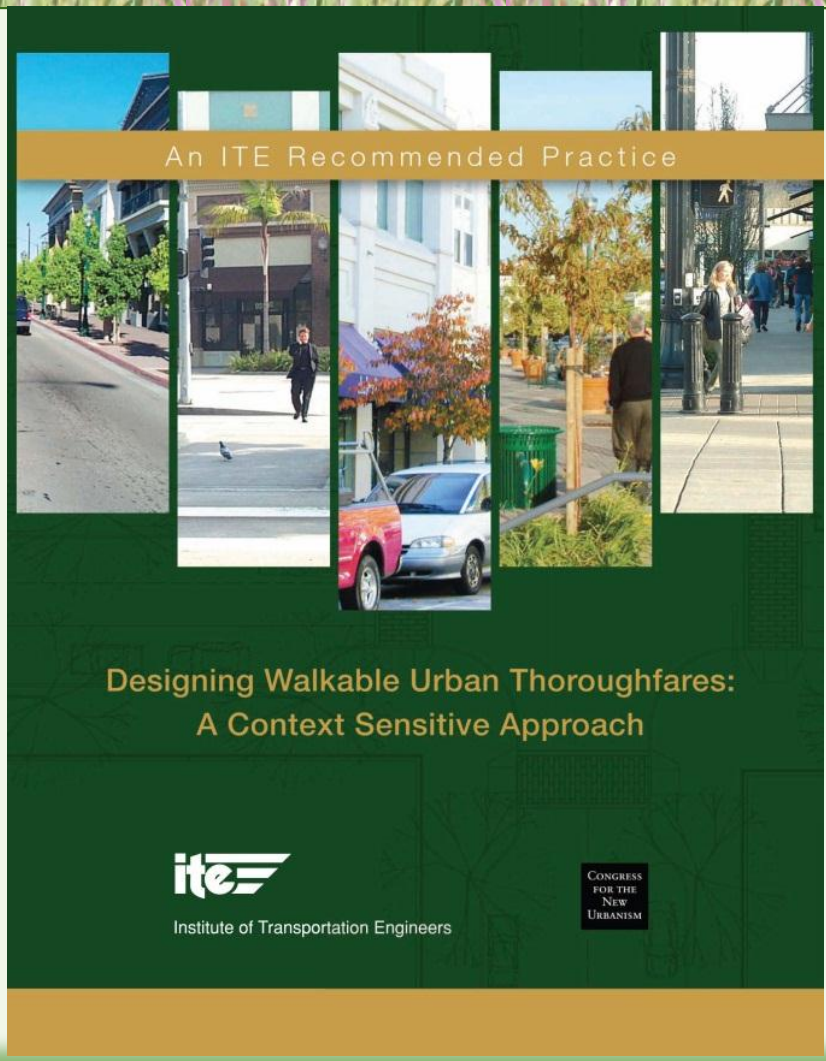
Win-Win Transportation Solutions

Market reforms justified on economic principles that help provide various economic, social and environmental benefits.

- Improved travel options.
- Incentives to use travel alternatives.
- Accessible land use.
- Policy and market reforms.

Innovative Transport Planning

- Smart growth/New Urbanism
- Context oriented planning
- Complete streets
- Streetscaping
- Road diets
- Traffic calming
- Transportation Demand Management (TDM)
- Transit-Oriented development
- Parking management

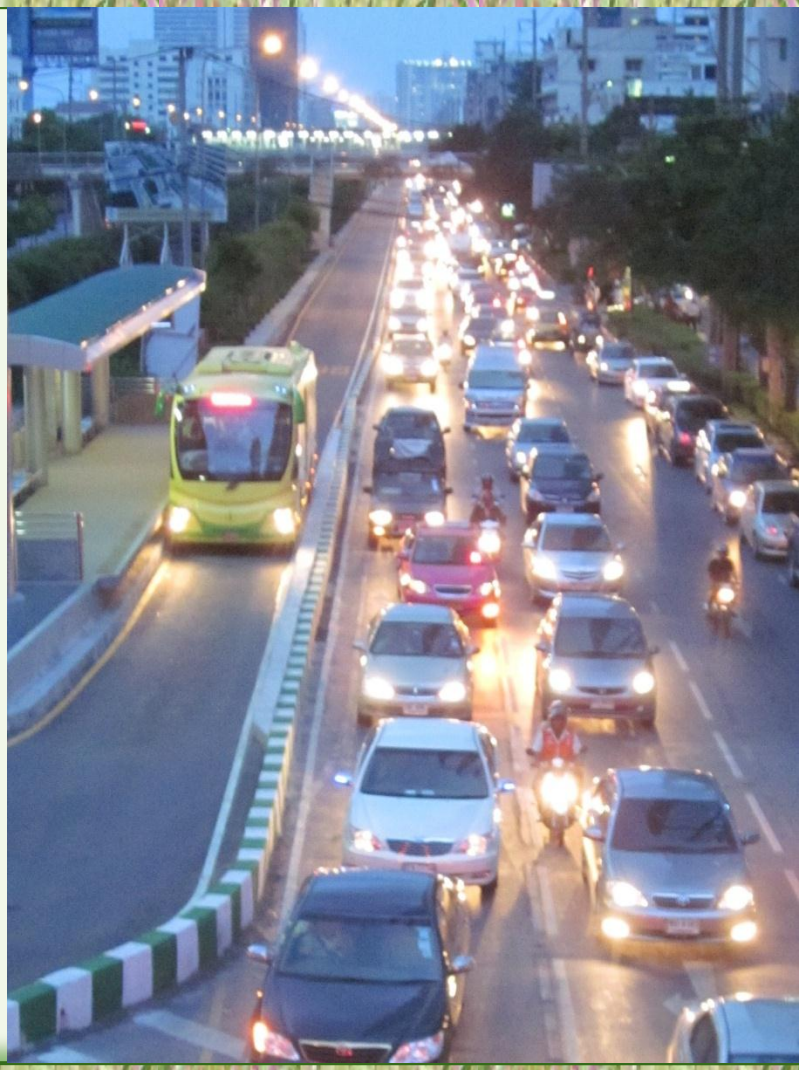


Sustainable Transport Hierarchy

1. Walking
2. Cycling
3. Public Transit
4. Service & Freight
5. Taxi
6. HOV
7. Private Automobile

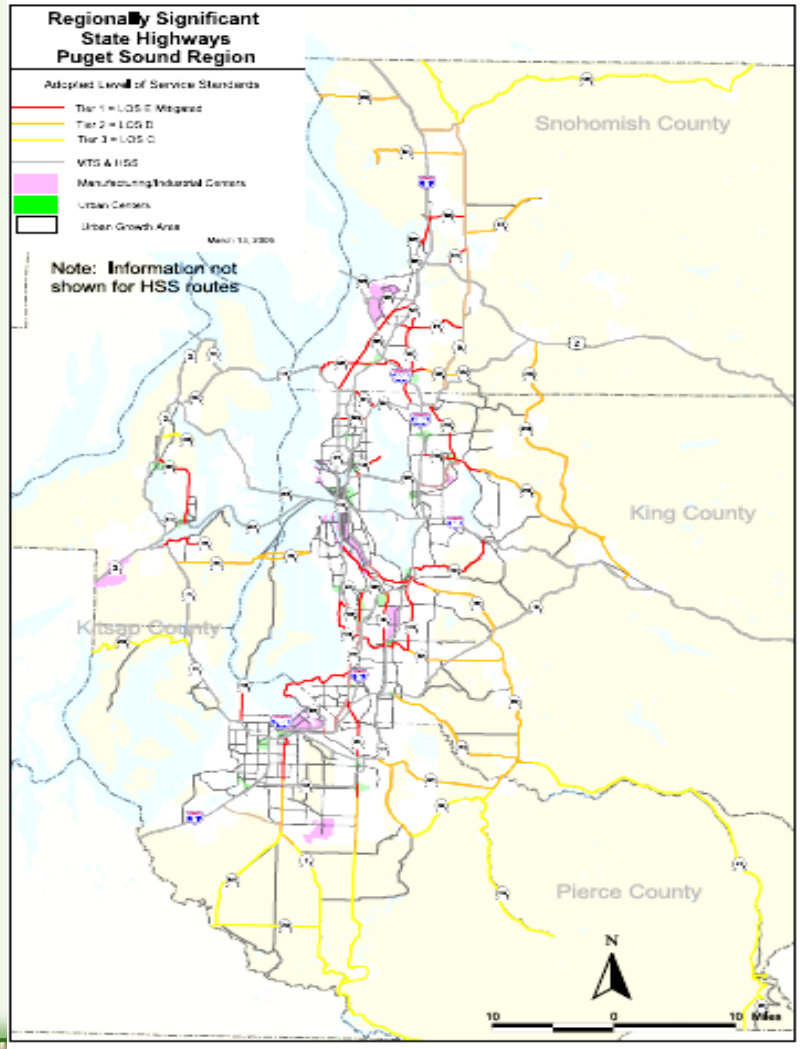
Comprehensive Multi-Modal Planning

- Evaluation and planning based on *accessibility* instead of *mobility.*
- Consider all modes
- Consider all impacts and objectives
- Least-cost funding (invest in the most cost effective solution, considering all impacts and objectives)



Conventional Transport Indicators

- Roadway Level-of-Service (LOS)
- Average traffic speeds.
- Per capita congestion delay.
- Parking occupancy rates.
- Traffic fatalities per billion vehicle-miles.
- Traffic fatalities per 100,000 population.



Multi-Modal Level-Of-Service (LOS)

Mode	Level of Service Factors
Walking	Sidewalk/path quality, street crossing conditions, land use conditions, safety and security
Cycling	Bike paths and lanes, street riding conditions, bike parking
Ridesharing	Ridematching services, chances of finding matches, HOV priority
Public transit	Service coverage, frequency, speed (relative to driving), vehicle and waiting area comfort, user information, price, safety and security
Automobile	Speed, congestion delay, roadway conditions, parking convenience, safety
Telework	Employer acceptance/support of telecommuting, Internet access
Delivery services	Coverage, speed, convenience, affordability

Multi-Modal LOS (Jacksonville)

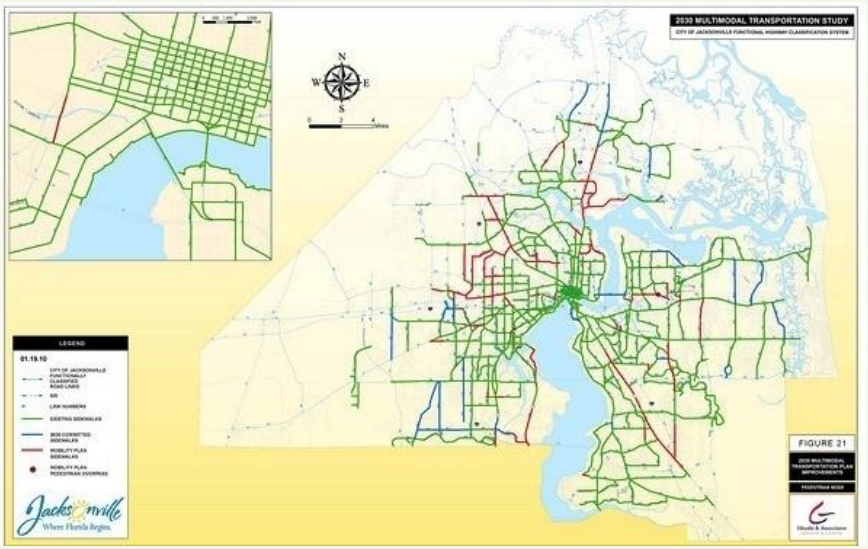
Cycling LOS

Pedestrian LOS

Multi-Modal Prioritization

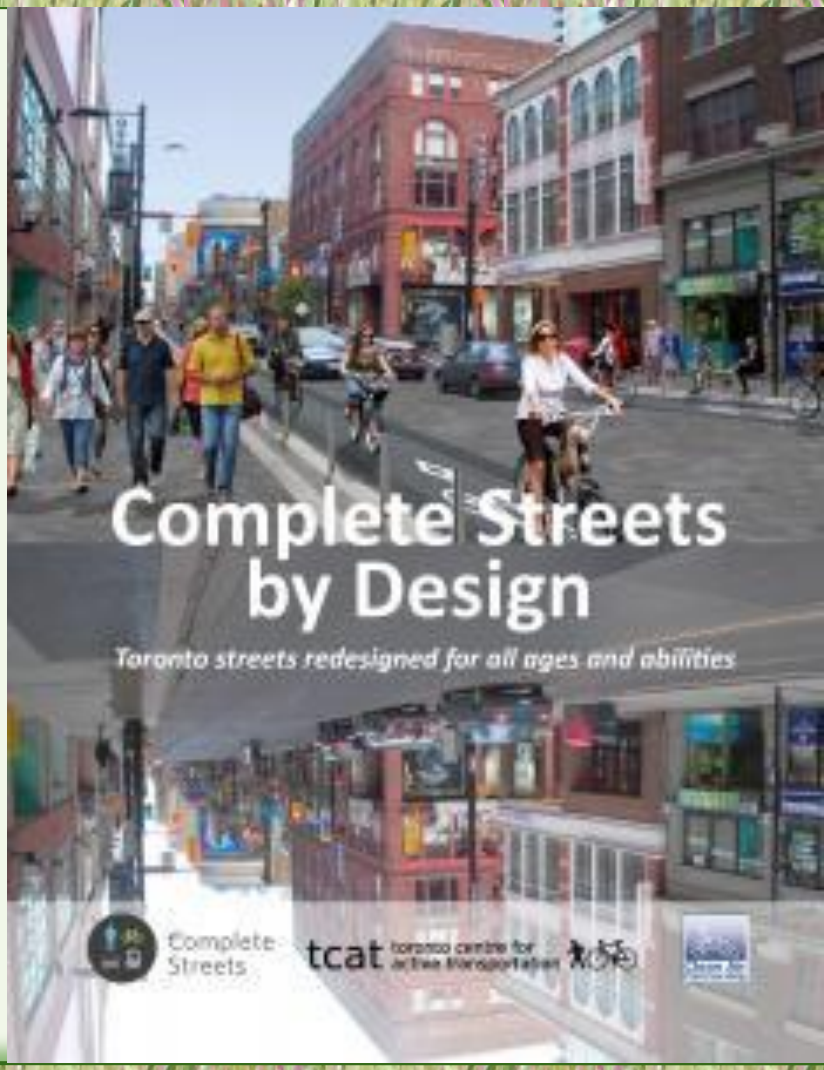
Cycling Improvements

Pedestrian Improvements



Complete Streets

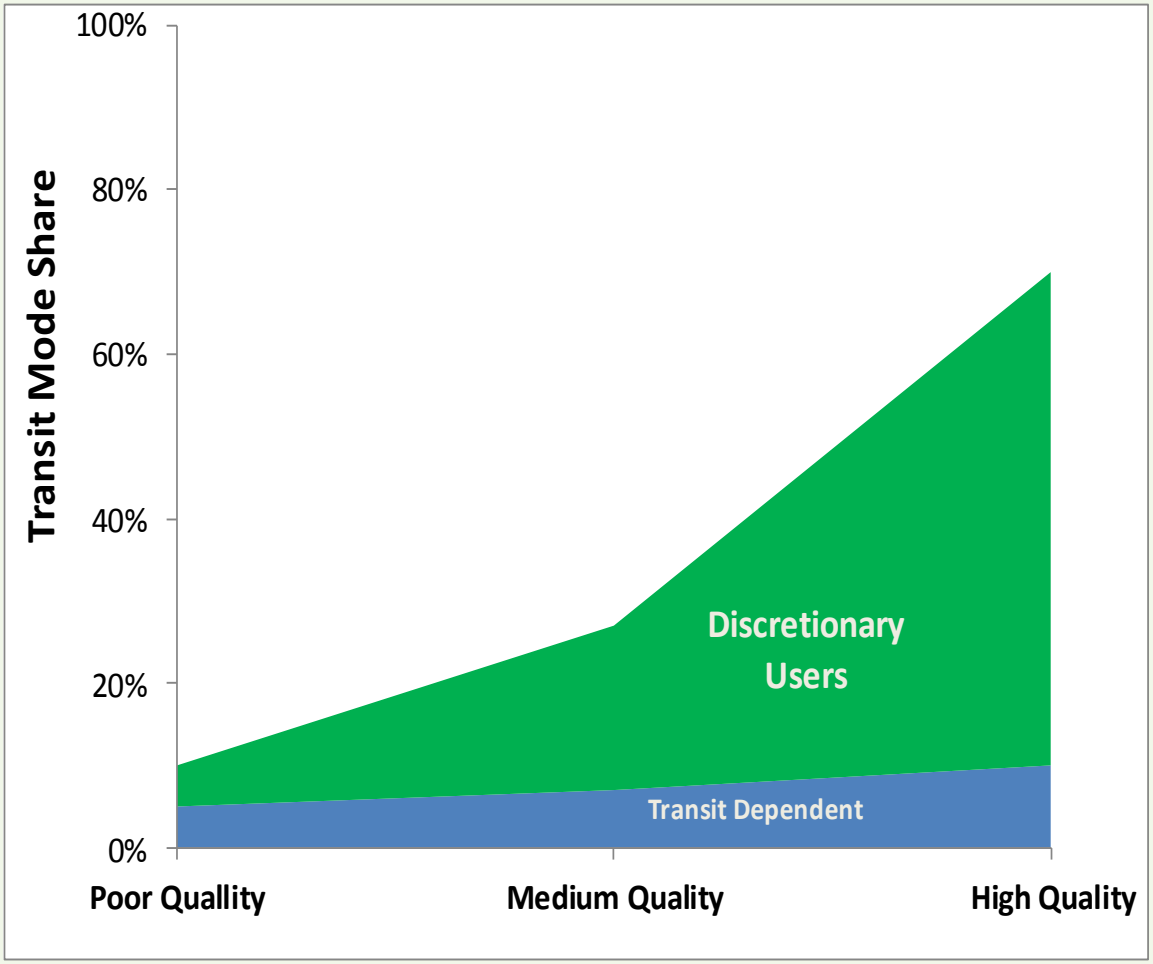
A Complete Street is designed for all activities, abilities, and travel modes. Complete Streets provide safe and comfortable access for pedestrians, cyclists, transit users and motorists, and a livable environment for visitors, customers, employees and residents in the area.



Mode Shifts

How do we convince people who drive luxury cars to shift mode?

Increasing Transit Mode Share



A portion of the population is *transit dependent* and will use transit services even if poor quality.

As public transit service quality improves it will attract an increasing portion of *discretionary travelers* (people who can travel by automobile).

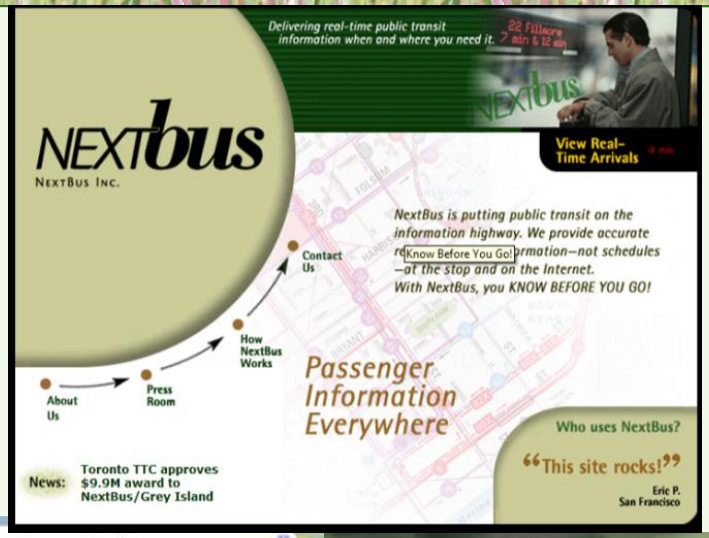
Attracting Discretionary Riders

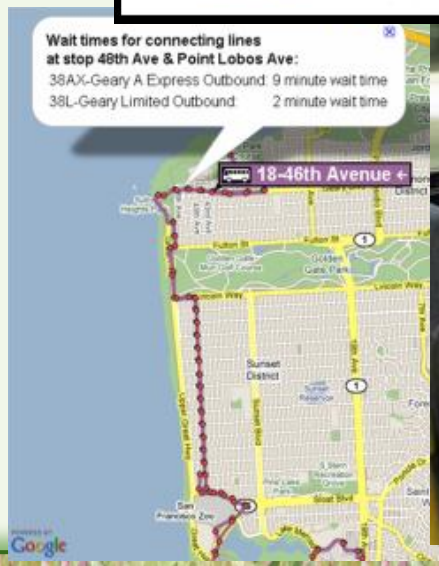
- Quality service (convenient, fast, comfortable)
- Affordable
- Support and incentives (commute trip reduction programs, parking cash out, etc.)
- Integrated (good connections, walking and cycling access to stops and stations, transit-oriented development)
- Convenient information
- Integrated with special events
- Positive Image

User Information

Provide information when and were users need it:

- Transit route, schedule and fares
- Discounts and incentives.
- Real-time arrival.
- Navigation to bus stops, train stations and destinations.
- Travel times for various modes (e.g., transit vs. driving).
- Special problems (warnings of delays).
- On-board wifi services.
- Parking availability and price.





Ridesharing

Market studies suggest that a third of suburban automobile commuters would consider vanpooling, if it had:

- Flexibility.
- High Occupant Vehicle priority lanes and parking.
- Financial incentives.
- Integration with public transit.
- Employer support.

Employee Trip Reduction Programs

Employers encourage employees to walk, bicycle, carpool, ride transit and telework rather than drive to work.

Walking and Cycling Improvements

- More investment in sidewalks, crosswalks, paths and bike lanes.
- Improved roadway shoulders.
- More traffic calming.
- Bicycle parking and changing facilities.
- Encouragement, education and enforcement programs.

School & Campus Transport Management

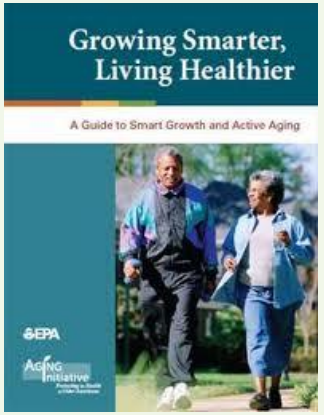
Programs that encourage parents and students to use alternative modes to travel to schools, colleges and universities.

Carsharing

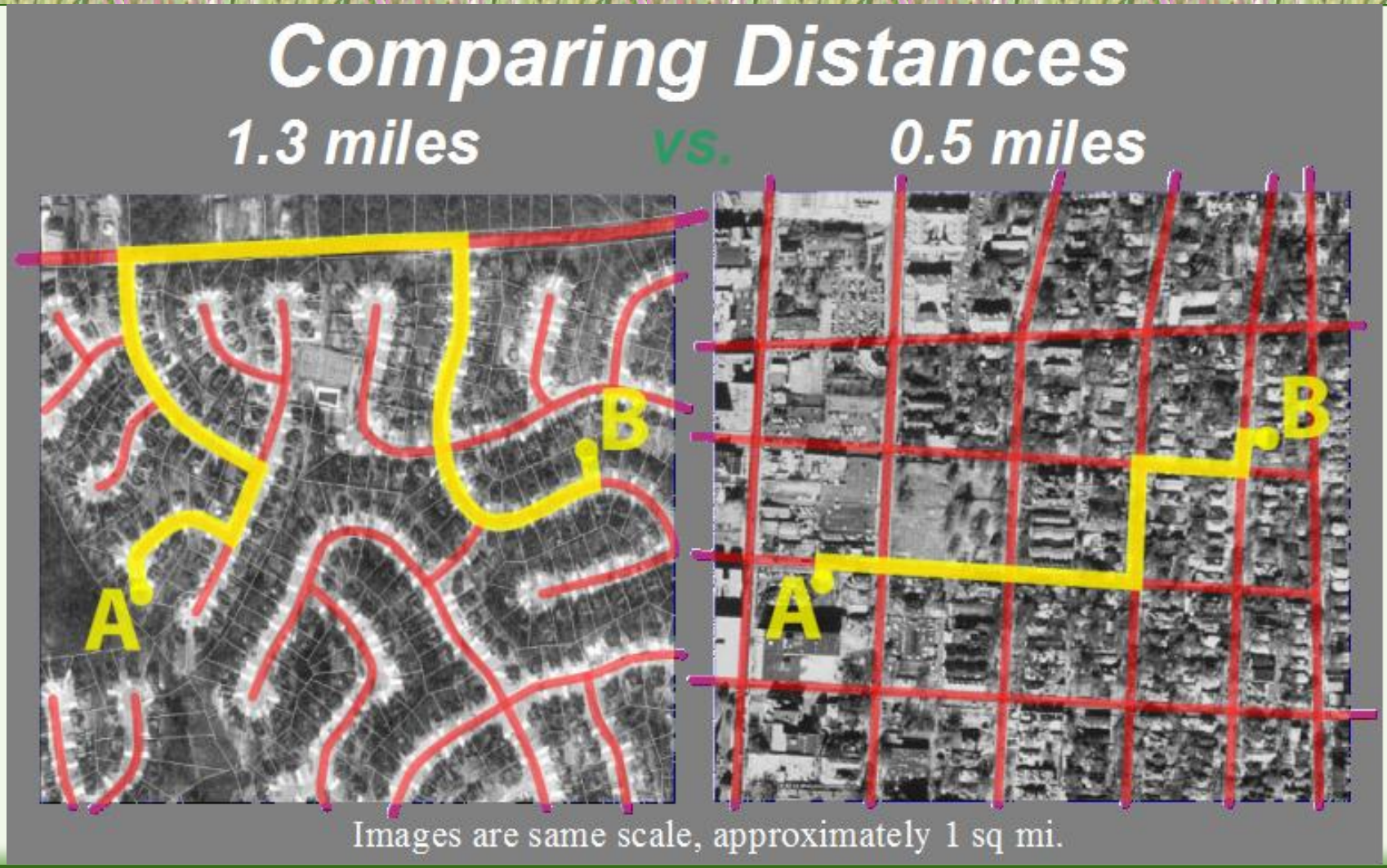
Automobile rental services intended to substitute for private vehicle ownership.

Smart Growth

- Compact (higher density)
- Mixed use
- Diverse housing types
- Connected roads
- Multi-modal
- Good walking and cycling conditions
- Good public transit services
- Efficient parking management
- Emphasis on the public realm (public places where people interact)



Street Connectivity

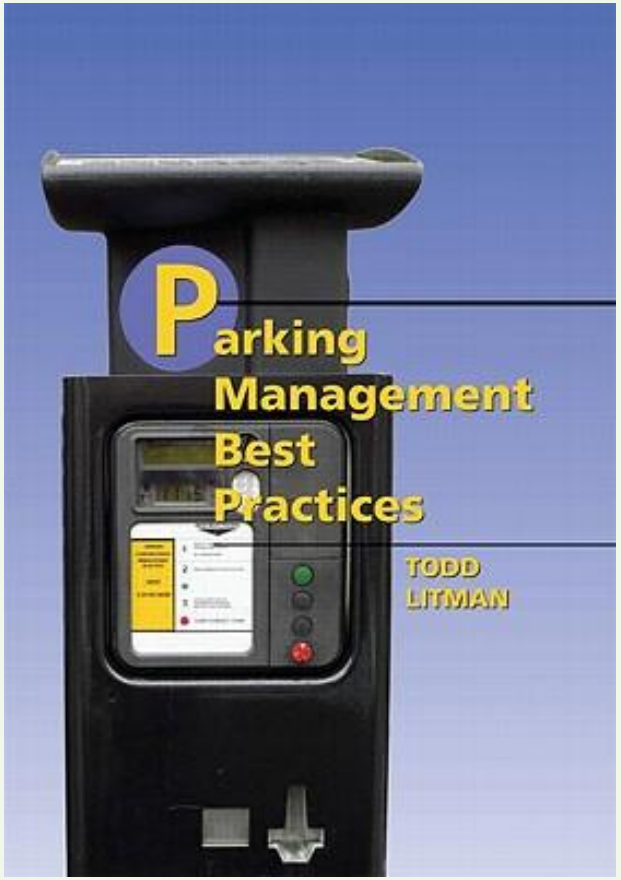


Parking Management

Various strategies that result in more efficient use of parking supply

Parking Management Strategies

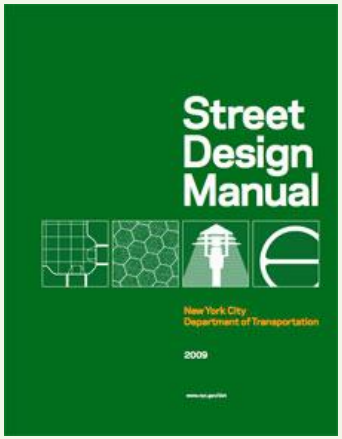
- Share spaces, within a parking lot and between destinations
- Use of off-site parking, particularly for occasional overflow
- Reduced and more flexible requirements
- Regulate and price to prioritize use of the most convenient spaces
- Encouraging use of alternative modes, particularly during peak periods
- Improved walking conditions, to allow more convenient use of off-site parking facilities
- Improved user information, so travelers can determine their travel and parking options.
- Improved design of existing parking facilities

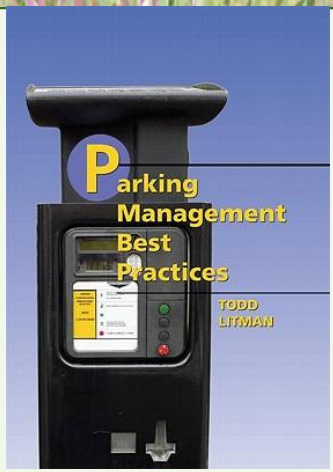


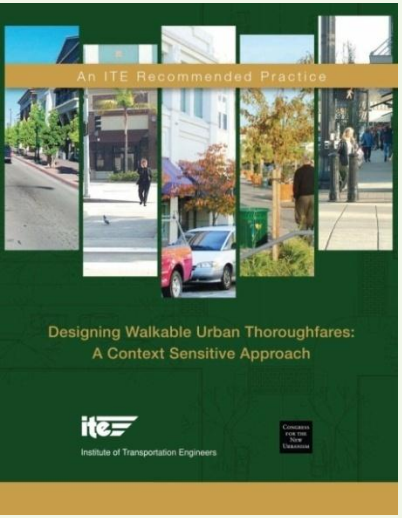
Affordable-Accessible Housing

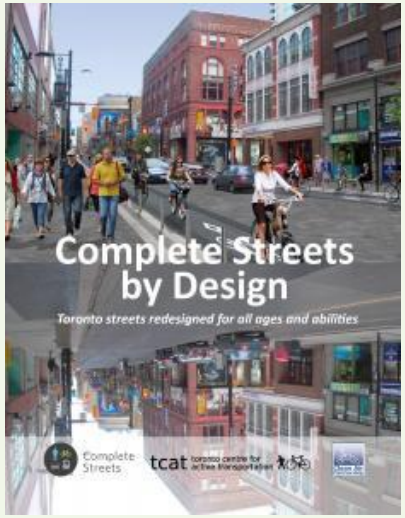
- Locate affordable housing in accessible areas (near services and jobs, walkable, public transit).
- Diverse, affordable housing options (secondary suites, rooms over shops, loft apartments).
- Reduced parking requirements and unbundle parking.
- Reduces property taxes and utility fees for clustered and infill housing.

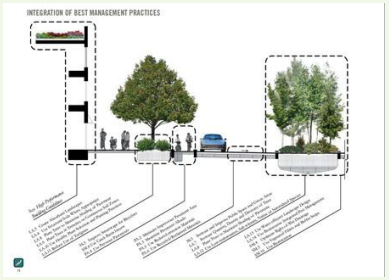
New Planning Resources

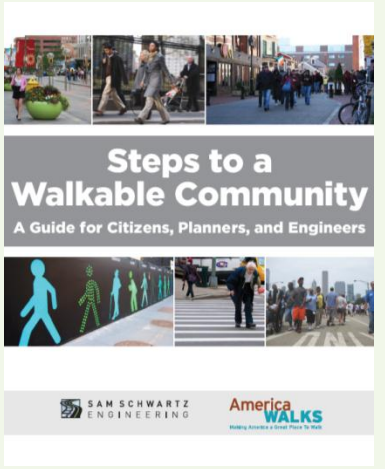












Potential For Change

Some people would prefer to drive less and use alternatives more. *Focus on them.*

What would help these people change their travel behavior?

Motorists Benefit Too

More balanced transport policy is no more “anti-car” than a healthy diet is anti-food. Motorists have every reason to support these reforms:

- Reduced traffic and parking congestion
- Improved safety
- Improved travel options
- Reduced chauffeuring burden
- Often the quickest and most cost effective way to improve driving conditions

“Where We Want To Be: Housing Location Preferences and Their Implications for Smart Growth”

“Evaluating Public Transit Benefits and Costs”

“Transportation Cost and Benefit Analysis”

“Parking Management Best Practices”

“The Future Isn’t What It Used To Be”

“Evaluating Smart Growth Benefits”

“Online TDM Encyclopedia”

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